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09/777,653	02/07/2001	Yasuo Ohsawa	Q62556	9224

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EXAMINER
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MARI, STEVEN D

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/777,653

Applicant(s)

OHSAWA, YASUO

Examiner

Steven D. Maki

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12 and 15-18 is/are allowed.
- 6) ☒ Claim(s) 1, 3-11, 13, 14 and 19-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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1) The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Incorporation of the last four lines of amended claim 1.

More specifically, incorporation of the description of the two sides of the triangle sectional shape being neither in parallel with nor perpendicular to a surface of the tread. Incorporation of the above noted description would not constitute new matter since the original disclosure when read as a whole, including (a) the disclosure of varying the angles  $\theta_1$  and  $\theta_2$  (figure 15) and (b) the disclosure of a triangle having one side perpendicular to the tread surface and the other side parallel to the tread surface (figure 26), reasonably convey the subject matter of the two sides of the triangle sectional shape being neither in parallel with nor perpendicular to a surface of the tread.

2) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Europe '873

4) Claims 1, 3-10 and 24 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Europe '873 (EP 393873).

Europe '873 is applied as in paragraph 8 of the last office action dated 11-19-03 (paragraph 8 of the last office action is incorporated herein by reference).

With respect to the depth being 0.01-.3 mm and the pitch being 0.01-.3 mm, Europe '873 teaches steps having a step height  $x$  and step width  $y$  of 0.2 mm to 2 mm. See col. 4 lines 49-51. Hence, Europe '873 discloses steps having a height  $x$  of 0.2 mm and a width  $y$  of 0.2 mm. The smaller grooves defined by steps having a height  $x$  of 0.2 mm and a width of 0.2 mm have a **depth of 0.14 mm** and a **pitch of 0.28 mm**.

As to claims 1, 3-10 and 24, Europe '873's depth of 0.14 mm falls within the claimed range of 0.01-0.3 mm and Europe '873's pitch of 0.28 falls within the claimed range of 0.01-0.3 mm.

As to the two sides of the triangle being neither in parallel with nor perpendicular to a surface of the tread, Europe '873 shows steps defining smaller grooves wherein each smaller groove has two sides defining an angle  $\alpha$  of 90 degrees. With an angle  $\alpha$  of 90 degrees, the smaller groove has one side parallel to the tread surface and one side perpendicular to the tread surface. However, Europe '873 is not limited to an angle  $\alpha$  of 90 degrees. At col. 2 lines 47-51, Europe '873 teaches that an angle  $\alpha$  of 15-75 degrees is more preferable than an angle  $\alpha$  of 90 degrees. Europe '873's disclosure of using an angle  $\alpha$  less than 90 degrees such as 15-75 degrees

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for the triangular shaped smaller groove defined by the steps teaches the subject matter of the two sides of the triangle being neither in parallel with nor perpendicular to a surface of the tread. Accordingly Europe '873 anticipates claim 1. In any event: As to claim 1, it would have been obvious to one of ordinary skill in the art to form the steps in the groove walls of Europe '873's tire and thereby define smaller grooves each having faces defining a triangular cross section such that (a) the depth of the smaller grooves is 0.01-0.3 mm and the pitch is 0.01-0.3 mm and (b) the two sides of the triangle are neither in parallel with nor perpendicular to a surface of the tread since (1) Europe '873 teaches that the lengths x, y of each of the faces of the smaller groove defined by the steps may each be as low as 0.2 mm (a depth of 0.14 mm and a pitch of .28 mm thereby being defined) and (2) Europe '873 teaches that the angle alpha defined by the faces having lengths x, y may be less than 90 degrees such as 15-75 degrees.

Heinen

5) Claims 1, 3-7, 9-11, 13-14 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinen (US 6415835).

Heinen is applied as in paragraph 9 of the last office action (paragraph 9 of the last office action is incorporated herein by reference).

The certified English translation of applicant's priority document 2000-29656 (filed 2-7-00) has been received. However, Heinen (filed 6-8-00) remains available as prior art under 35 USC 102(e) since each of claims 1, 3-7, 9-11, 13-14 and 19-24 are not supported by the disclosure of applicant's priority document 2000-29656 and are therefore not entitled to the benefit of its filing date. With respect to claim 1, the subject

matter of two sides of the triangle sectional shape being neither in parallel with nor perpendicular to a surface of the tread is supported by the disclosure of this application but not the disclosure of priority document 2000-296656; it being noted that 2000-296656 does not contain the subject matter relating to figures 15 and 26 of this application. With respect to claims 5, 8, 11, 13, 14 and 20-23, these claims are more clearly not supported by 2000-296656. Example: Priority document 2000-296656 does not describe  $P \leq 2 D$  as in claim 5. Another example: Priority document 2000-296656 does not teach inclination angle  $\theta_1$  being set larger on the first groove wall of the smaller groove formed on the bottom side of the groove than on the first wall of the smaller groove formed on the tread surface side as in claim 21.

As to claims 1, 3-7, 9-11, 13-14 and 20-24, it would have been obvious to one of ordinary skill in the art to use smaller longitudinally extending grooves having the claimed depth (0.01-0.3 mm) and the claimed pitch (0.01-0.3 mm) since (1) Heinen teaches using peaks and valleys to form riblets 28 (each riblet defined by "radially extending smaller grooves" and "longitudinally extending smaller grooves"), (2) Heinen teaches that the peaks and valleys reduce skin friction drag to thereby increase water flow from the groove, and (3) Heinen teaches that the pitch  $P_1$  may be less than 40% of the groove width (e.g. less than 5 mm) and the depth may be 5-15% of groove width (e.g. less than 3 mm) wherein pitch  $P_1$  and depth  $D_1$  of the peaks and valleys can be *optimized* for tire speed and groove size. No undue experimentation would have been required to arrive at the claimed ranges for depth and pitch in view of Heinen's teaching to *optimize* the peaks and valleys to reduce skin friction drag and thereby increase

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water flow so as to improve wet performance. The description of "at least one of said grooves formed in said tread, so as to extend only in a longitudinal direction" fails to exclude radially extending grooves.

As to the claimed sectional shape, it would have been obvious to one of ordinary skill in the art to configure the smaller grooves extending in only the longitudinal direction such that the smaller groove has a triangular sectional shape in which the two sides of the triangle are neither in parallel with nor perpendicular to a surface of the tread since (1) Heinen teaches configuring the groove walls to comprise riblets defined by "radially extending smaller grooves" (smaller grooves extending in the radial direction) and "longitudinally extending smaller grooves" (smaller grooves extending in only the longitudinal direction), (2) Heinen shows the groove walls of the smaller grooves defining the riblets in figure 5 as being inclined at an angle with respect to the tread surface, and (3) Heinen shows using various cross sectional shapes for the smaller grooves including triangular cross sectional shape (figure 6).

6) Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heinen as applied above and further in view of Japan '605.

Japan '605 is applied as in paragraph 10 of the last office action (paragraph 10 of the last office action is incorporated herein by reference).

#### **Allowable Subject Matter**

7) **Claims 12 and 15-18 are allowed.**

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Remarks

8) The claim identifier for claim 15 should be --(previously presented)-- instead of "(Original)".

Applicant's arguments with respect to claims 1, 3-11, 13, 14 and 19-24 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 5-19-03 have been fully considered but they are not persuasive.

Applicant argues that the two sides of triangular sectional shape of the smaller grooves in Europe '873 are either parallel or perpendicular to the tread surface as can be seen from figures 1 and 2. This argument is not persuasive since Europe '873 is not limited to the two sides of the triangular sectional shape defining an angle alpha of 90 degrees. Angles less than 90 degrees such as 15-75 degrees may be used for angle alpha. See col. 2 lines 47-51.

Applicant argues that there are other values of height and width in Europe '873 that would lead to a pitch and depth well outside the claimed range. This argument is not persuasive for the simple reason that Europe '873 discloses values of height and width that would lead to a pitch and depth within the claimed range.

Applicant argues that Europe '873 is silent as to pitch. The examiner disagrees since Europe '873 teaches a constant pitch (the values of x and y do not vary from one smaller groove to another smaller groove).

Applicant argues that Heinen is deficient in regard to the two sides of the triangular cross section being neither parallel with nor perpendicular to a surface of the



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tread. This argument is not persuasive since the groove walls of the longitudinally extending smaller grooves are each inclined at an acute angle with respect to the tread surface as a result of the riblet shape shown in figure 5.

Applicant argues that Heinen's riblets do not extend only in the longitudinal direction. This argument makes no sense since the riblets are "land portions" defined by valleys (smaller grooves).

Applicant argues that Heinen does not teach smaller grooves that extend only in the longitudinal direction. This argument is not persuasive. In the figure 5 embodiment of Heinen, the groove wall comprises riblets. The riblets are defined by smaller grooves extending in radial direction and smaller grooves extending only in the longitudinal direction. Specifically, the smaller grooves extending in the radial direction define left and right sides of the riblets and the smaller grooves extending only in the longitudinal direction defines the upper and lower sides of the riblets. The claimed grooves read on the smaller grooves extending only in the longitudinal direction, which define the upper and lower sides of the riblets; applicant having provided no convincing argument to the contrary. In other words and in light of the transitional phrase "comprising" (line 1 of claim 1) and the expression "extend only in a longitudinal direction" (line 5 of claim 1), "only" at line 5 of claim 1 relates to the "longitudinal direction" instead of the presence or absence of another plurality of smaller grooves.

9) Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

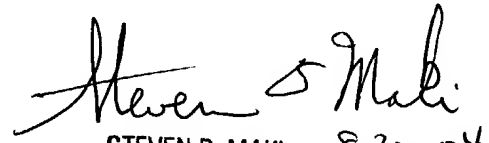
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven D. Maki  
August 20, 2004

  
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PRIMARY EXAMINER  
~~GROUP 1300~~  
AV 1733  
8-20-04